Appendix I

Shell Martinez Refinery

ETP-1 Biotreater Delayed Closure Decision Documents

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2005 Annual Report of Noncompliance – Hazardous Waste Facility Permit Shell Martinez Refinery

Department of Toxic Substances Control

Edwin F. Lowry, Director
700 Heinz Ave, Suite 200
Berkeley, California 94710

Winston H. Hickox
Secretary for
Environmental
Protection

Gray Davis
Governor

August 21, 2003

Mr. John Lazorik
Environmental Engineer
Shell Oil Products US, Martinez Refinery
P.O. Box 711
Martinez, CA 94553-0071

APPROVAL OF DELAY OF CLOSURE OF BIOTREATER, MARTINEZ REFINING COMPANY, A DIVISION OF EQUILON ENTERPRISES, LLC, MARTINEZ, CALIFORNIA, EPA ID No. CA 009164021

Dear Mr. Lazorik:

The Department of Toxic Substances Control (DTSC) has reviewed your Class 2 Permit Modification requesting a Delay of Closure for Surface Impoundment, Effluent Treatment Pond 1 - Biotreater.

DTSC has determined that your application is technically complete and hereby approves the Delay of Closure of Biotreater. Please note that

1. The ETP-1 Biotreater is permitted to accept non-hazardous wastewaters only.

2. Groundwater monitoring will continue to be managed under the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) Order 95-234. The SFBRWQCB is the lead agency for sitewide corrective action in accordance with SB1082. Any changes made to Order 95-234 are subject to review by all interested parties including DTSC, providing the DTSC an opportunity to comment on any proposed changes.

3. "The Groundwater Boundary Control Capture Verification Modeling Report" will continue to be provided to DTSC and SFBRWQCB on an annual basis. This report shall include a section that summarizes the activities that took place during the year as a result of recommendation made in the prior years' report.

4. Permittee is no longer required to comply with the hazardous waste inspection, records keeping, and training requirements for this specific Biotreater unit, since it is no longer processing hazardous waste.

5. The closure of this unit in accordance with the approved closure plan in the Part B application will be implemented when the unit ceases to operate.

We have filed a CEQA Notice of Exemption with the Office of Planning and Research. Enclosed is a copy of the Revised Permit.

If you have any questions, please call Waqar Ahmad of my staff at (510) 540-3932.

Sincerely,

Salvatore Ciriello,
Supervising Hazardous Substances Engineer
Standardized Permits and Corrective Action Branch

Attachment

cc: Patti Barni
Statewide Compliance Unit
Department of Toxic Substances Control
700 Heinz Ave, Suite 200
Berkeley, CA 94710

Norman Shopay
Geological Support Services Unit
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, CA 94710

Shell Oil Products US

Martinez Refinery
PO Box 711
Martinez, CA 94553-0071

SUBJECT: Meeting Minutes – Delay of Closure for Surface Impoundment ETP-1 Biotreater, June 5, 2003 (EPA ID No. CAD 009 164 021)

In Attendance: Dan Glaze (Shell), John Lazorik (Shell), Waqar Ahmad (DTSC), Norman Shopay (DTSC), Alan Friedman (SFBRWQCB), Brent Dyer (Shell Global Solutions), Sanjay Garg (Shell Global Solutions)

The purpose of this meeting was to bring together key staff from DTSC, SFBRWQCB, and Shell to discuss the regulatory and technical aspects of the delay of closure of the ETP-1 Biotreater. An important Shell objective was to demonstrate that the corrective action program currently in place under SFBRWQCB Order 95-234 is sufficient to assure protection of human health and the environment with regard to continued use of the ETP #1 biotreater for treatment of non-hazardous wastewater.

Background

Shell Martinez Refinery (SMR) was required to obtain a RCRA Hazardous Waste Facility Permit for operating the ETP #1 Biotreater due to the likelihood of benzene concentrations above RCRA hazardous waste levels in the Biotreater feedwater. Shortly thereafter, Federal land ban regulations prohibited the treatment of hazardous waste in unlined surface impoundments, in effect, making the RCRA permit for treating hazardous waste unusable. In the early part of 1996, benzene containing process wastestreams were routed to the newly constructed ETP-2 Biotreater tank that is currently permitted under California Permit-By-Rule (PBR) regulations. Although the ETP-1 Biotreater was no longer receiving hazardous waste, it's continued use is essential to the refinery operation for meeting NPDES permit limits. As such, SMR submitted a Class 2 Permit Modification to the DTSC in April of 1998 for a delay of closure of the ETP-1Biotreater surface impoundment.

Following the Delay of Closure submittal, DTSC made several requests for information related to monitoring wells associated with the ETP-1 Biotreater and detection of potential leaks. However, due to the hydrogeologic nature of the area surrounding the Biotreater and the presence of legacy contamination from other potential sources, statistical analyses from monitoring well data cannot be used as a viable indicator of a release from the unit. In recent meetings with DTSC staff, SMR also indicated that the Biotreater is located within the boundaries of the refinery's West Valley groundwater capture zone and is explicitly covered by the facility corrective action program as defined in San Francisco Bay Regional Water Quality Control Board Order WDR 95-234. Since corrective action is already in place, Shell's position was that statistical analyses is not warranted since the purpose of those analyses is to define a corrective action plan. The intent of this recent meeting was to

demonstrate to DTSC and SFBRWQCB staff that the corrective action program currently in place is robust enough to be protective of human health and the environment from any existing or potential groundwater contamination in the area, including a release, however unlikely, from the Biotreater.

Overview of the Martinez Refinery and Groundwater Management

Dan Glaze summarized the evolution of the Martinez Refinery from 1915 to present as new operating units were constructed to meet product demands and new environmental regulations. In the 1980's SFBRWQCB and USEPA required investigations of disposal sites and contamination from historic spills and leaks. Over 600 wells were installed and over 70 site investigations were completed with corrective action in place. Under direction of SFBRWQCB staff, SMR subsequently developed a groundwater basin boundary control strategy based on full capture of groundwater at various downgradient property lines.

Requirements for this basin boundary control to assure ongoing environmentally protective management of refinery groundwater were formalized by the SFBRWQCB under their Order 95-234 issued in December, 1995. As required by Provision 5 of this Order, SMR currently submits annual updates of the corrective action program to the SFBRWQCB and DTSC in an annual "Groundwater Boundary Control Capture Verification Modeling Report". This report describes the effectiveness of the extraction systems and summarizes the continued refinement and enhancement of the boundary control system at the refinery.

Capture Zone Modeling

Participating via videoconference, Brent Dyer and Sanjay Garg of Shell Global Systems (SGS) in Houston, provided a technical presentation of the capture zone modeling that is currently in place at SMR. As stipulated in WDR Order 95-234, detailed three-dimensional numerical groundwater flow modeling and data analyses is performed to verify boundary control capture at all perimeter compliance areas of each of the refinery's four major groundwater basins. The ETP-1 Biotreater falls completely within the demonstrated capture zone of the West Valley Basin.

The groundwater flow and pathline simulation models for all basins are constructed using U.S. Geological Survey's MODFLOW model and the MODPATH model. The widely used Groundwater Modeling System (GMS 3.1, DOD 1998) is used to prepare input files for the abovementioned models and produce graphic output files. Capture zone polygons are developed using particle tracking results and flow vector plots based on simulated groundwater flow.

The groundwater flow modeling simulations are verified by matching measured and calculated groundwater elevations in wells and determining the mean absolute error. Calibration statistics on the calculated and observed groundwater elevations show excellent correlation indicating that the model is predictive of actual conditions. DTSC requested the addition of a correlation coefficient (i.e. $r^{2)}$ for the calculated versus actual groundwater elevation graph. SMR agreed to provide this in subsequent reports.

Particle tracking is used in the groundwater flow model to illustrate the areas influenced by various groundwater extraction systems in each major basin. Several extraction systems

adjacent to the Biotreater draw the groundwater flow direction toward a French drain system ("the ETP subdrain"), away from the property boundary. This and other extraction systems in the West Valley Basin provide 100% capture of all groundwater contaminants surrounding the Biotreater. Results of the annual modeling exercise illustrate the effectiveness of the groundwater capture systems and the need, if any, for additional extraction wells or increased pumping rates of existing wells providing a dynamic and self-improving system.

Regulatory Summary/Applicability of Order 95-234 Corrective Action to Biotreater

John Lazorik followed up with a summary of pertinent regulations located in CCR Title 22 Sections 66264.97 through 66264.100 regarding groundwater monitoring requirements and the corrective action process as well as Section 66264.113 covering elements of regulated unit closure including delay of closure. These applicable regulations strongly suggest that the purpose of statistical analyses on background and downgradient wells is to determine if there is evidence of release from a treatment unit and to assess the nature and extent of release as a basis for developing a corrective action plan. However, corrective action for historic waste units and existing facilities including the ETP-1 Biotreater, has been formally in place since at least 1995 at the Martinez Refinery. Therefore statistical analyses referenced in DTSC regulations are not currently applicable to the ETP-1 Biotreater since a mature corrective action program for this unit is already in place under SFBRWQCB Order 95-234.

Following the technical and regulatory presentation, Shell proposed that DTSC grant the delay of closure and make the appropriate permit modification provided that Shell continue to implement the corrective action program including the submittal of all appropriate reports. Furthermore, Shell believes it is appropriate that groundwater compliance continue to be managed through SFBRWQCB Order 95-234, as the lead agency, and that this Order be referenced in the DTSC permit modification. DTSC and SFBRWQCB staff offered concurrence that the current corrective action program is protective of the environment and is applicable to the Biotreater. Any changes made to Order 95-234 are subject to review by all interested parties providing DTSC the opportunity to comment on any proposed changes.

Shell agreed to continue the current RCRA well monitoring program specified in the Hazardous Waste Facility Permit issued by DTSC with the need for statistical analyses precluded by corrective action already underway. The "Groundwater Boundary Control Capture Verification Modeling Report" will continue to be provided to DTSC and SFBRWQCB on an annual basis. Alan Friedman suggested that the report include a section that summarizes the activities that took place during the year as a result of recommendation made in the prior years' report. All parties agreed that this would clarify what actions have been taken. This section will be included in the March 2004 submittal.

DTSC agreed to make the appropriate permit modifications to allow continued operation of the ETP-1 Biotreater for the treatment of non-hazardous wastes.

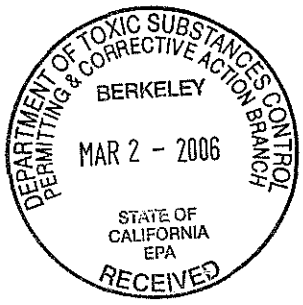
Following the meeting, Dan Glaze and John Lazorik escorted the group for a tour of the effluent treatment plant and RCRA facility including the CO Boilers.

This meeting was a significant milestone in that agreement was reached by all parties to finalize the delay of closure and that the facility corrective action program is embraced by

both the SFBRWQCB and the DTSC as being protective of the environment and applicable to the Biotreater.

Shell Oil Products US

Martinez Refinery
PO Box 711
Martinez, CA 94553-0071
Tel (925) 313-3000
Fax (925) 313-3065



Certified Mail

February 28, 2006

Department of Toxic Substances Control
Attn: Chief, Facility Permitting Branch
700 Heinz Ave, Suite 300
Berkeley, CA 94710-2737

Subject:: **2005 Annual Report of Noncompliance – Hazardous Waste Facility Permit**
Shell Martinez Refinery - EPA ID No. CAD 009164021

Shell Martinez Refinery (SMR) hereby submits the following Annual Report of Noncompliance for the year 2005 as required by permit condition II.O.7 of SMR's previous Hazardous Waste Facility Permit. Although SMR's current Hazardous Waste Facility Permit does not include this requirement, this reporting requirement is generally described by the California Code of Regulations, Title 22, § 66270.30. A signed certification for the report is also enclosed as required by Title 22, § 66270.11.

If you have any questions regarding the contents of this report, please contact Steven Overman at (925) 313-3281.

Sincerely yours,

Lynley C. Harris, Manager
Environmental Affairs

Enclosure

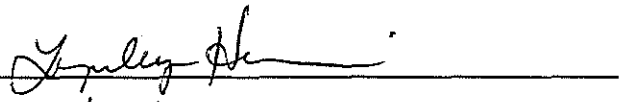
cc: (with enclosure)
Waqar Ahmad
Department of Toxic Substances Control
700 Heinz Ave, Suite 300
Berkeley, CA 94710-2737

SDO\

Certification for 2005 Annual Noncompliance Report

February 28, 2006

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNED 

DATE 2/28/06

NAME Lynley C. Harris

TITLE Manager, Environmental Affairs

SHELL OIL PRODUCTS US
SHELL MARTINEZ REFINERY (SMR)
EPA ID NO. CAD 009164021

2005 ANNUAL NONCOMPLIANCE REPORT

Permit condition II.O.7 of the Shell Martinez Refinery's previous Hazardous Waste Facility Permit required that an annual report be submitted to the Department of Toxic Substances Control by February 15th for noncompliances other than those reported under permit condition II.K. (24-Hour Reporting). Although the current Hazardous Waste Facility Permit does not include this reporting requirement and schedule, this requirement is generally prescribed by the California Code of Regulations, Title 22, §66270.30. As a result, the Shell Martinez Refinery continues to provide annual non-compliance reports every February. This report covers the period from January 1, 2005 through December 31, 2005.

In November 2004, the Shell Martinez Refinery replaced the obsolete chart recorders with a digital process data monitoring, collection and retention system. A Class I permit modification dated July 30, 2004 provides additional information for this data monitoring system. The Shell Martinez Refinery began using this system for data acquisition on November 30, 2004. On May 11, 2005, DTSC field inspection staff conducted a RCRA compliance audit of the CO Boilers and reviewed the operation of this new data collection system. The DTSC inspectors were satisfied with the data collection, display and retention capabilities of this system. No additional physical alterations, additions or modifications to the permitted units occurred in 2005.

During 2005, there were no fires or explosions involving any of the permitted hazardous waste units. On August 24, 2005, the CO Boilers experienced a spill of flyash to the concrete process unit pad. Shell Martinez Refinery staff provided a written follow-up report for this spill by letter dated August 31, 2005.

Following an internal audit conducted in August 2005, by letter dated August 25, 2005, the Shell Martinez Refinery provided a self-disclosure report to DTSC about the storage of hydrotreating catalyst in three idle lube oil hydrotreating reactors within the Lubes Hydrotreating units LHT-1 and LHT-2. This catalyst was removed from the reactors in September and was shipped off-site in October and November 2005. The storage of catalyst in these units is not covered by the Hazardous Waste Facility Permit.

On December 19 and 20, 2005, Shell Martinez Refinery staff collected a set of samples of ETP-1 Biotreater Feedwater for benzene analysis as part of a semi-annual monitoring program to demonstrate compliance with the Hazardous Waste Facility Permit requirement that ETP-1

Biotreater Feedwater be nonhazardous. To meet this criterion, the benzene result must be less than 500 parts per billion (ppb). Analytical results received in January 2006 indicated the average benzene concentration for this set of samples exceeded this permit limit. On January 23, 2006, Shell Martinez Refinery staff provided a verbal report to Mr. Waqar Ahmad. As a follow-up, another set of samples was collected on January 31 and February 1, 2006. To date, the analytical results are not yet available. Once these results are available, a written follow-up report will be provided to DTSC.

Other information required by 22 CCR 66270.30(l)(6) follows:

Owner Name, Address, Telephone Number
Shell Martinez Refinery
Marina Vista & Shell Avenue
P.O. Box 711
Martinez, CA 94553
(925) 313-3000

Facility Name, Address, Telephone Number
Shell Martinez Refinery
Marina Vista and Shell Avenue
P.O. Box 711
Martinez, CA 94553
(925) 313-3000

Noncompliance Report Summary - CO BOILERS

THE CO BOILERS EXPERIENCED TWO POTENTIAL NONCOMPLIANCES IN 2005. THIS REPRESENTS A 71% REDUCTION FROM 2004 AND A 50% REDUCTION FROM 2003.

NONCOMPLIANCES REPORTED FOR CURRENT AND PREVIOUS YEARS RECORD

2005	2004	2003	2002	2001
2	7	4	4	2

THESE POTENTIAL NONCOMPLIANCES ARE DOCUMENTED IN THE FIELD ON "NONCOMPLIANCE REPORT FORMS" WHICH ARE FILLED OUT BY THE UNIT OPERATORS. THE UTILITIES OPERATIONS SPECIALIST OR HIS DESIGNATE REVIEWS THE NONCOMPLIANCE REPORTS AS WELL AS ALL OF THE YOKOGAWA ELECTRONIC DATA POINTS WEEKLY TO ASSURE THAT ALL NONCOMPLIANCES HAVE BEEN IDENTIFIED AND CORRECTIVE ACTION HAS BEEN INITIATED.

THE 2005 CO BOILER POTENTIAL NONCOMPLIANCES FALL INTO ONE "SPECIFIC" NONCOMPLIANCE CATEGORY. THE GENERAL COMPLIANCE CATEGORIES AND REFERENCE PERMIT CONDITIONS ARE SHOWN ON THE FOLLOWING PAGE. THE POTENTIAL NONCOMPLIANCES EXPERIENCED IN 2005 WERE CAUSED FROM FAILURE TO DOCUMENT WASTE FEED EVENTS.

TABLE 1

CO BOILERS

2005 NONCOMPLIANCES

NUMBER OF AND SPECIFIC NONCOMPLIANCE CATEGORY		GENERAL COMPLIANCE CATEGORY FROM DTSC PERMIT	REFERENCE PERMIT CONDITION
2	FAILURE TO DOCUMENT WASTE FEED EVENTS/ DEACTIVATION FOR INSTRUMENT CALIBRATION	RECORDKEEPING	III.E.5.F.
2	**TOTAL**		

FAILURE TO DOCUMENT WASTE FEED EVENTS

PERMIT CONDITION III.E.5.F. - *"THE PERMITTEE SHALL RECORD IN ITS OPERATING RECORD FOR THIS PERMIT THE DATE AND TIME OF ALL AWFCO'S, INCLUDING THE TRIGGERING PARAMETERS, REASON FOR THE CUT-OFF, AND CORRECTIVE ACTIONS TAKEN. THE PERMITTEE SHALL ALSO RECORD ALL FAILURES OF THE AWFCO SYSTEM TO FUNCTION PROPERLY AND CORRECTIVE ACTIONS TAKEN."*

DATE	TIME	COB #	DESCRIPTION
7/26/05	0732	COB·1,2,3	Failure to document "bypass off" at end of 02/CO morning calibration.
7/28/05	1203	COB 1	Failure to document start of biosludge burning in CO Boiler #1.

NAME AND QUANTITY OF MATERIALS INVOLVED:

DAF FLOAT (K048) AND NON-HAZARDOUS BIOSOLIDS

EXTENT OF INJURIES:

NONE

ASSESSMENT OF ACTUAL OR POTENTIAL HAZARDS TO THE ENVIRONMENT & HUMAN HEALTH:

NO ACTUAL OR POTENTIAL HAZARDS RESULTED FROM THESE INCIDENTS. THE INCIDENTS INVOLVED WERE FAILING TO DOCUMENT THE STARTING OF BIOSLUDGE BURNING. ALL AVAILABLE DATA SHOWS THAT THE AUTOMATIC WASTE FEED CUT-OFF SYSTEM WAS OPERATING PROPERLY DURING THESE EVENTS AND THAT NO LIMITS WERE EXCEEDED WITHOUT ACTIVATING THE AUTOMATIC WASTE FEED CUT-OFF TO THE BOILERS.

CORRECTIVE ACTION:

IN EACH CASE OF NONCONFORMANCE, THE OPERATIONS SPECIALIST OR SHIFT TEAM LEADER REVIEWED THE INCIDENT WITH THE INVOLVED PERSONNEL. IN EACH INSTANCE, THE IMPORTANCE OF COMPLETE AND ACCURATE DOCUMENTATION WAS EMPHASIZED. THE OVERALL REDUCTION IN THE NUMBER OF NONCOMPLIANCES OVER THE PAST SEVERAL YEARS IS EVIDENCE OF THE OPERATORS'CONTINUED AWARENESS OF AND COMMITMENT TO PROPER DOCUMENTATION.